DOCUMENT RESUME

ED 458 853 HE 034 502

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TITLE The Effects of Time-Limitations and Peer Relationships on Adult Student Learning: A Causal Model.
PUB DATE 2001-11-00
NOTE 16p.; Paper presented at the Annual Meeting of the Association for the Study of Higher Education (26th, Richmond, VA, November 15-18, 2001).
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Academic Achievement; *Adult Students; Age Differences; Causal Models; Higher Education; Learning; *Peer Relationship; *Social Integration; *Time Factors (Learning); Time Management

ABSTRACT

Using data from 4,644 undergraduates, this study tested a causal model identifying effects of social integration, age, and time limiting characteristics on adult student learning. Time limiting characteristics included such constraints as off-campus responsibilities and relationships. Educationally related peer relationships were the strongest predictors of gains for all students. Time-limitations hindered learning for younger students, but not for students aged 30 and older. (Contains 1 figure, 3 tables, and 28 references.) (Author/SLD)

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ED 458 853

The Effects of Time-limitations and Peer Relationships on Adult Student Learning: A Causal Model

A Paper Presented by

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2001 Association for the Study of Higher Education

Annual conference

November 15-18, 2001

Richmond, Virginia

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Abstract

Using data from 4644 undergraduates, this study tested a causal model identifying effects of social integration, age, and time-limiting characteristics on adult student learning. Educationally-related peer relationships were the strongest predictors of gains for all students. Time-limitations hindered learning for younger students, but not for students 30 and older.

Adult students are one of the most rapidly growing segments of today's college student population, making up approximately 40% of all college students (Chronicle of Higher Education Almanac, 1999-2000). Despite their increasing numbers, our understanding of the unique factors that predict adult student success has not kept pace. The role of social integration is one that is especially unclear for adult students. Studies based on the experience of younger students consistently support the important role of social integration for student success (Astin, 1993; Pace, 1984; Pascarella & Terenzini, 1991; Pascarella, Whitt, Nora, Edison, Hagedorn, & Terenzini, 1996; Tinto, 1987, 1993). However, these studies are based primarily on the experience of students younger than 23 years old, so their relevance to adults may be limited, particularly because adult lives often contain multiple off campus responsibilities and relationships that may limit their time available for investment in social relationships. Nearly all adults commute, most work, and many enroll part-time (Kasworm, 1990a; Schlossberg, Lynch, & Chickering, 1989). However, because of the confound among these variables, it is difficult to identify the effects of each specific variable. Differences related to adult students may be mistakenly attributed to age rather than to the unique combination of these time limitations.

Many studies of adults put them in the category of "nontraditional students" along with commuters, part-time students, students who work many hours, first generation college students, and students of color (Bean & Metzner, 1985; Kasworm, 1990a, 1990b; Kasworm & Pike, 1994; Kuh, 1993; 1995; Metzner & Bean, 1987). This presents a

broad picture of nontraditional students, but since there is some overlap of students in each group, unique features of each specific group's experience are masked. Further investigation is warranted to understand the way each of these nontraditional characteristics affects student success in college, particularly for adult students who most often attend college in a nontraditional way.

The study presented in this paper uses multiple linear path analysis to investigate the factors that influence success for adult students, how these factors differ for different ages, and how in particular time limitations impact success. Peer relationships were defined broadly and not limited to classroom-related activities. Younger students were included in the study to identify whether the differences were related to age or to other nontraditional characteristics of commuting, enrolling part-time, and working. Social and academic integration variables were disaggregated into variables of nonacademic social interaction, interaction with faculty members, and educationally meaningful peer relationships. The question of whether adults are different because of their age or because of their time-limited status is central to this study, guided by the following two research questions:

1. How do background characteristics, time-limiting characteristics of the college experience, social and academic integration, and quality of effort contribute to student learning?
2. Is there a difference in this pattern based on the age of students (20-23, 24-29, 30 and older)?

The proposed path in figure 1 was tested to answer these questions.

The Survey

The fourth edition of the College Student Experiences Questionnaire (CSEQ) (Kuh & Pace, 1998) was used for this study. The CSEQ is designed to assess where students expend effort related to their college experience and what they learn as a result of their college experience. It measures quality of effort through thirteen activity scales on topics of writing experiences, campus facility use, course learning, the arts, experience with faculty, personal experiences, library use, computer and information technology, clubs and organizations, student acquaintances, science and quantitative experiences, topics of conversation, and information in conversations. Gains are measured in general education, intellectual skills, science, personal development, and vocational preparation. Because of this study's focus on adult students, many of whom were already working in careers, the vocational preparation scale of the CSEQ was not used.

The CSEQ relies on students' self-report of estimates of gains. Such self reports are considered valid if the information given is known to the students, if the questions are phrased clearly, and if students consider the question worthy of a thoughtful response (Pace, 1985). The CSEQ items satisfy these conditions. In addition, self-reports have been shown to be correlated with more objective measures of learning gains, such as scores on objective tests (Pascarella & Terenzini, 1991; Pike, 1995). The items on the CSEQ scales have been described as clear, well-defined, with high face validity (Brown, 1985; DeCoster, 1989; McCammon, 1989; Mitchell, 1983). The CSEQ has been used

since 1979, with over 350,000 college students, with demonstrated reliability and validity since its inception (Kuh, Vesper, Connolly & Pace, 1997; Pace, 1992, 1987; Pace & Swayze, 1992).

The Sample

The sample consisted of 4644 undergraduate students who took the College Student Experiences Questionnaire (CSEQ) during the 1998-1999 academic year, drawn from a larger data set of approximately 20,000 students from twenty institutions. The institutions were primarily comprehensive colleges and universities (60%, n=2767) or research universities (25%, n=1163), but included doctoral universities (7.5%, n=347), liberal arts colleges (7.2%, n=337), and AA degree granting colleges (.6%, n=30). The sample included slightly more women (n=2594, 57%) than men (n=2050, 43%). Table 1, below, shows the sample in terms of age groups and time-limitations.

Table 1

Time-limiting Characteristics by Age Group (n=4644)

			Commute		Part-time		Working	
Age	n	%	n	%	n	%	n	%
20-23	2361	51	919	39	361	15	467	26
24-29	1345	29	970	72	263	20	488	43
30 and older	938	20	791	85	299	32	335	41

The Variables

The variables in this model measured learning across four domains, effort in reading and writing, peer teaching, peer discussion, nonacademic peer relationships,

frequency of interaction with faculty, time-limiting characteristics, background characteristics, and quality of relationships with students, faculty, and administrators. The four endogenous variables were: learning, effort in reading and writing, peer teaching, peer discussion, nonacademic peer relationships, faculty interaction, time-limiting variables, and quality of relationships with students, faculty and administrators. Exogenous variables were background variables of gender, marital status, major, first generation status, ethnicity, advanced degree plans, institution type, and college class level. All variables except background variables used a likert scale of measurement.

Results

A path model identified both the direct and indirect effects of variables. Multiple linear regression was used to test the model, entering the data in a stepwise fashion, using mean substitution to replace missing data. Only variables with betas ($p<.05$) were included in the model. Tolerance was set at .30 to prevent multicollinearity. Only statistically significant betas ($p <.05$) are presented in this paper. The path was tested for each of the following age groups: 20-23 (n=2361), 24-29 (n=1345), and 30 years or older (n=938).

Effects of Time Limitations by Age Group

Time-limiting characteristics exercised their effect primarily indirectly, rather than directly. For the youngest and oldest age groups, there were no direct effects of time-limiting characteristics on gains, and for the 24-29 year old group the only direct effect was the negative interactive effect of commuting and Native American/Latino/African American ethnicity. Thus, time-limiting characteristics

affected gains primarily through their effect on social and academic integration and on effort. Table 2 below, shows total effects for time-limiting variables for each of the age groups.

Table 2

Total Effects of Time-limiting Variables on Gains, Split by Age (n=4644)*

	Age Groups		
Time-limiting Variable	20-23	24-29	30 and older
Part-time	-.024	-.043	-.031
Part-time x working	-.011	.008	
Part-time x first generation	.003	-.011	
Part-time x commuting	-.010		-.017
Part-time x Native Amer./Latino/African Amer.	-.011		
Commuting	-.018		
Commuting x first generation	-.018		
Commuting x Native Amer/Latino/African Amer			-.081
Commuting x working			.023
Working on campus	.040	.010	
Job affects school	-.020	-.006	-.031
Hours working off campus			.006
Working x first generation			.006

*variables entered the regressions at $p < .05$ and were removed if $p > .10$

Time-limiting variables had more negative effects for younger students than for older students, with the youngest groups getting negative total effects for seven of the nine time-limiting variables that entered the equation, the middle group having negative total effects for four of the six variables that entered, and the oldest group having negative effects for three of the six time-limiting variables in their equation. Peer discussion was the strongest predictor of gains for every age group. In addition, peer teaching, faculty interaction, and quality of relationships with faculty, students, and administrators were strong predictors of gains for every age group. The total effects for social and academic integration variables are listed in Table 3 below.

Table 3

Total Effects for Social and Academic Integration for Entire Sample and Split by Age Groups*

	Entire Sample	20-23	24-29	30 and older
Variable	n=4644	n=2361	n=1345	n=938
Peer Teaching	.184	.190	.179	.123
Peer Discussion	.294	.349	.268	.221
Faculty Interaction	.107	.091	.113	.146
Quality of relationships with students	.119	.123	.130	.075
Quality of relationships with faculty	.121	.138	.098	.129
Quality of relationships with administrators	.115	.079	.118	.197

*variables entered the regressions at $p < .05$ and were removed if $p > .10$

The effects of quality of relationships with administrators got progressively larger with each age group. For students 30 and older, this was the second strongest variable in the equation. The total effects for peer teaching and for peer discussion got lower with each progressive age group, but those effects were relatively high even for the oldest group. Frequency of interaction with faculty had increasing effects for each progressive age group. Thus, faculty interaction was a stronger predictor of gains for older students than it was for younger students. Conversely, educationally meaningful student interaction was a stronger predictor of gains for younger students than it was for older students. However, it is important to note that both faculty interaction and educationally peer interaction were strong predictors for all students, regardless of age. The small differences in total effect show that these variables were affected by age, but that effect was relatively small.

Discussion

By separating educationally-related peer relationships from purely social relationships, this study found that peer relationships contribute strongly to learning for students of all ages when those relationships are related to learning. Indeed, these relationships were the strongest predictors of learning for all students in this study, regardless of age.

Tinto's recent work (1998a, 1998b) demonstrates that classrooms structured around peer learning predict students learning better than traditional classrooms where students work individually and independently. The distinguishing feature of these peer relationships was the focus on educationally related topics of conversation. This finding may be especially important for time-limited students who have limited access to campus peers due to off-campus responsibilities, but who may have peers off campus with whom they discuss ideas related to their education. The causal model found these discussions to be the strongest predictors of learning for all students, regardless of age. This presents a new perspective on the role of peers for adult student learning and highlights the important role of educationally related peer relationships for all students, even adults.

Off-campus involvements and activities that draw students' energy away from the college experience have been found to hinder student learning (Astin, 1993; Pascarella & Terenzini, 1991), but those studies have not focused on students 30 years and older. This study found that while commuting, enrolling part-time, and working had negative effects on learning for students 29 and younger, these time-limitations did not affect learning for students 30 and older. In addition, time limitations had a negative affect on peer

discussion for students 29 and younger, but no effect for students 30 and older. These older students appear to be relatively impervious to time-limitations. Indeed, these students reported greater learning gains when they worked *more* hours off campus.

Quality of relationships with administrators was a strong predictor of learning for all students in this study, but it was strongest for students 30 years and older; second only to peer discussion in terms of the total effects it predicted for this age group. When these students viewed administrators as flexible, helpful, and considerate, rather than rigid, impersonal, and bound by regulations, they learned more. The strength of this variable provides empirical support for the call that higher education environments must restructure their services, hours, and perceptions about adult students (Kasworm, 1993; Schlossberg, Lynch, & Chickering, 1989).

In 1996, the American College Personnel Association drafted the Student Learning Imperative, asserting that the central role of student affairs is to foster student learning (ACPA, 1996). The findings from this study suggest that the most profitable investment of student effort is in educationally-related peer relationships, regardless of the age of the student. Accordingly, the most profitable investment of student affairs effort may be in developing programs, settings, and services that facilitate such relationships. Tinto (1998a, 1998b) calls for a restructuring of the academic side of the house around peer learning groups; this study supports his call and echoes it to the student affairs side as well.

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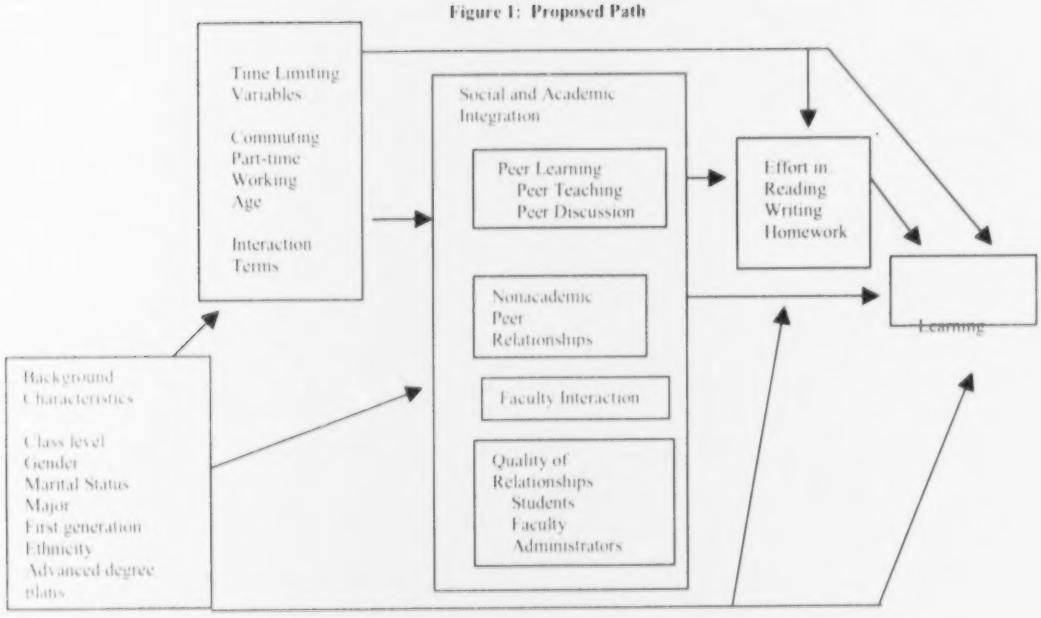
Figure 1: Proposed Path



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